

Claims

1. A liquid crystal device characterized by including:
a liquid crystal layer which controls a phase
5 distribution of transmitted light;
a pair of substrates which sandwich and seal said
liquid crystal layer therebetween; and
a pair of electrodes which are respectively disposed
at inner sides of said substrates to apply a
10 predetermined voltage to said liquid crystal layer, and
characterized in that:
an uneven portion for giving a distribution to a
thickness of said liquid crystal layer is provided
inwardly of said substrates, and
15 said pair of electrodes are formed in planar shapes
parallel to each other.
2. A liquid crystal device according to claim 1,
characterized in that said uneven portion is formed of a
20 molded synthetic resin disposed between said liquid
crystal layer and said electrodes.
3. A liquid crystal device according to claim 2,
characterized in that said molded synthetic resin is made
25 of an ultraviolet-curable resin.
4. A liquid crystal device according to claim 1,
characterized in that said uneven portion is formed of a
dielectric layer deposited on a liquid-crystal-side
30 surface of said electrodes.

5. A liquid crystal device according to claim 1, characterized in that said uneven portion is provided on only one of said pair of substrates.

5 6. An optical pickup characterized by having an objective lens disposed to face a recording medium, a laser light source which supplies laser light to said objective lens, and a liquid crystal device which is disposed in an optical path leading from said laser light
10 source to said objective lens and controls a phase distribution of transmitted light, and characterized in that:

said liquid crystal device includes:

a liquid crystal layer which controls the phase
15 distribution of the light being transmitted;

a pair of substrates which sandwich and seal said liquid crystal layer therebetween; and

a pair of electrodes which are respectively disposed at inner sides of said substrates to apply a
20 predetermined voltage to said liquid crystal layer,

an uneven portion for giving a distribution to a thickness of said liquid crystal layer is provided inwardly of said substrates, and

said pair of electrodes are formed in planar shapes
25 parallel to each other.

7. A manufacturing method for a liquid crystal device which includes:

a liquid crystal layer which controls a phase
30 distribution of transmitted light;

a pair of substrates which sandwich and seal said

liquid crystal layer therebetween; and

a pair of electrodes which are respectively disposed at inner sides of said substrates to apply a predetermined voltage to said liquid crystal layer,

5 said method characterized by comprising:

a step of providing an uneven portion for giving a distribution to a thickness of said liquid crystal layer inwardly of said substrates; and

a step of forming said pair of electrodes into
10 planar shapes parallel to each other.

8. A manufacturing method for said liquid crystal device according to claim 7, characterized in that in said step of providing said uneven portion, a molded
15 synthetic resin having said uneven portion is provided between said liquid crystal layer and said electrodes by a shape transfer method using a mold.

9. A manufacturing method for said liquid crystal
20 device according to claim 8, characterized in that said molded synthetic resin is made of an ultraviolet-curable resin and is cured by irradiation with ultraviolet rays.

10. A manufacturing method for said liquid crystal
25 device according to claim 7, characterized in that in said step of providing said uneven portion, a dielectric layer is provided on a liquid-crystal-side surface of said electrodes by patterning using a photomask.